

A

JC902 U.S. PTO



22193

PATENT TRADEMARK OFFICE

Address to: Box PATENT APPLICATION Assistant Commissioner for Patents Washington, DC 20231	Attorney Docket No.	1752/USW1752PUS
	Inventor(s) or Application Identifier: Donald E. Gillespie, David Robinson,	

1. This application entitled A METHOD AND SYSTEM FOR CONDITIONALLY ROUTING CALLS IS:
-
- a. x A new application under 37 C.F.R. §1.53(b).
- b. — A continuation ___ divisional or ___ continuation-in-part application under 37 C.F.R. § 1.53(b) of prior application Serial No. _____ filed on _____, entitled _____.

Application elements and other attached papers:

2. x Specification (incl. Claims and Abstract) [Total Pages 15]
3. x Drawings (informal x formal) [Total Sheets 3]
4. x Oath or Declaration
- a. x Newly-executed
- b. Copy from a prior application (37 C.F.R. § 1.63(d))
5. Incorporation By Reference: The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Item 4b, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.
6. This application is filed by fewer than all the inventors named in the prior application, 37 C.F.R. § 1.53(d)(4).
- a. ***DELETE*** the following inventor(s) named in the prior nonprovisional application:
- _____
- _____
- b. The inventor(s) to be deleted are set forth on a separate sheet attached hereto.

CERTIFICATION UNDER 37 C.F.R. § 1.10

I hereby certify that this UTILITY PATENT APPLICATION TRANSMITTAL and the documents referred to as attached therein are being deposited on the below date with the United States Postal Service in an envelope as "Express Mail Post Office to Addressee" addressed to: Box Patent Application, Assistant Commissioner for Patents, Washington, D.C. 20231.

Express
Mail Label No. EK 758486364 US

Date of Deposit: August 18, 2000

Kaye R. Miller
(Type or print name of person mailing paper)

(Signature of person mailing paper)

7. Preliminary Amendment:

- a. ☐ A Preliminary Amendment is attached.
- b. ☐ Cancel in this application original claims _____ of the prior application before calculating the filing fee.
- c. ☐ Please amend the specification by inserting before the first line the sentence:
 "This is a
 ☐ continuation
 ☐ divisional
 of copending application(s)
 Serial number ☐ / _____ filed on _____."
- d. ☐ A Petition to Suspend Prosecution For The Time Necessary to File An Amendment (New Application Filed Concurrently) is attached.

8. Small entity status:

- a. ☐ A small entity statement is attached.
- b. ☐ A small entity statement was filed in the prior nonprovisional application and such status is still proper and desired.
- c. ☐ Is no longer desired.

9. Fee Calculation:

FOR	NUMBER FILED	NUMBER EXTRA	RATE	CALCULATIONS
TOTAL CLAIMS (37 C.F.R. § 1.16(c))	20 -20 =	--	X 18.00	--
INDEPENDENT CLAIMS (37 C.F.R. § 1.16(b))	1 -3 =	--	X 78.00	--
MULTIPLE DEPENDENT CLAIMS (if applicable) (37 C.F.R. §1.16(d))			260.00	--
			BASIC FEE (37 C.F.R. § 1.16(a))	760.00
Total of above Calculations =				690.00
Reduction by 50% for filing by small entity (Note 37 C.F.R. §§ 1.9, 1.27, 1.28)				--
Assignment Recordal Fee			40.00	40.00
TOTAL =				730.00

10. ☐ A check in the amount of _____ is enclosed.
11. ☒ The Commissioner is hereby authorized to credit overpayments or charge the following fees (or any deficiency therein) to U S WEST, Inc. Deposit Account No. 21-0456 :
- a. ☒ Fees required under 37 C.F.R. § 1.16.
- b. ☒ Fees required under 37 C.F.R. § 1.17.

12. Maintenance of Copendency of Prior Application

- ☐ A request for extension of time and the appropriate fee have been filed in the pending **prior** application (or are being filed in the prior application concurrently herewith) to extend the period for response until _____.

13. ☐ An Information Disclosure Statement (IDS) is attached, along with the following indicated attachments thereto:

- a. ☐ Form PTO/SB/08A (1 sheet(s))
- b. ☐ Copies of references cited

14. ☐ Certified copy of priority document(s)

15. ☒ Return Receipt Postcard

16. ☐ Other: _____

17. ☒ An Assignment of the invention to Qwest Communications International Inc.

- a. ☒ is attached.
- b. ☐ was recorded on _____ at Reel _____, Frame _____.

18. The power of attorney in the prior application is to:

Name of Attorney of Record

Reg. No.

☐ The power appears in the original papers in the prior application.

☐ The power does not appear in the original papers, but was filed on _____.

☐ A new power has been executed and is attached.


19. Correspondence Address: Please address all future communications to:

Peter J. Kinsella

Telephone: 877-879-4747 or 303-672-2700; Fax: 303-308-9456

PATENT TRADEMARK OFFICE
Respectfully submitted,

Date 8-18-00



Name: Paul M. Schwartz
Registration No.: 33,278

☒ Attorney or agent of record
☐ Filed under Rule 34(a)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Donald E. Gillespie, David G. Robinson

Group Art Unit: N/A

Examiner: NOT ASSIGNED

Serial No.: N/A

Filed: June 29, 2000

For: METHOD AND SYSTEM FOR CONDITIONALLY ROUTING CALLS

Attorney Docket No.: USW 1752 PUS

TRANSMITTAL LETTER

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Enclosed with reference to the above matter are the following documents:

1. Assignment
2. Recordation Cover Sheet
3. The Commissioner is hereby authorized to credit overpayments or charge any fees associated with this request to U S West (Quest) Deposit Account No. 21-0456.

Respectfully submitted,

Donald E. Gillespie

By: 

Paul M. Schwartz
Reg. No. 33,278
Attorney/Agent for Applicant

Date: August 18, 2000

SCHWARTZ & SCHWARTZ, P.L.C.
29623 Northwestern Highway, Suite 200
Southfield, MI 48034
Phone: 248-386-7200
Fax: 248-386-7225

CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8

I hereby certify that this paper, including all enclosures referred to herein, is being deposited with the United States Postal Service as express mail, postage pre-paid, in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231 on:

8-18-00
Date of Deposit

Paul M. Schwartz
Name of Person Signing


Signature

METHOD AND SYSTEM FOR CONDITIONALLY ROUTING CALLS

TECHNICAL FIELD

This invention relates to a method and system for conditional call forwarding.

BACKGROUND ART

5 Call forwarding features, namely, Call Forwarding No Answer (CFNA), Call Forwarding Busy Line (CFBL), and Call Forwarding Default (CFD), are commonly available to wireless network subscribers. When invoked, these features permit calls for which a busy or no answer condition has been detected to be automatically transferred to a corresponding voice mail system. Such voice mail systems enable
10 callers to leave voice messages for wireless subscribers when the subscriber has powered off his or her handset, is out of coverage, is engaged in another wireless call, or, for whatever reason, elects not to answer the incoming call. The routing to the voice mail systems in all of these conditions is controlled by the above call forwarding features. These feature forward all unanswered incoming calls to a
15 single, fixed destination – a voice mail system.

 A prior art wireless communication system is shown in Figure 1 and designated generally by reference numeral 10. Wireless network 10 includes a Central Office Switch (COS) 12. COS 12 is provided in communication with the Public Switched Telephone Network (PSTN) 14 and one or more subscribers, each
20 having at least one Customer Premises Equipment (CPE) device 16. COS 12 is further provided in communication with a Mobile Switching Center (MSC) 20 and an Intelligent Peripheral (IP) 22. MSC 20 is, in turn, provided in communication with IP 22, a Home Location Register (HLR) 24 and one or more Base Station Controllers (BSCs) 26. Each BSC 26 is provided in communication with one or
25 more Base Stations (BSs) 28. Finally, each BS 28 is provided in communication with one or more mobile hand sets 30 each having an assigned calling number known

as a Mobile Directory Number (MDN) or Mobile Identification Number (MIN). Each handset 30 also has a preassigned Electrical Serial Number (ESN).

5 In operation, a call to a mobile subscriber having handset 30, whether originated from a wireless network or a wire line network, is forwarded through the Public Switched Telephone Network (PSTN) 14 to COS 12. COS 12 performs a database look-up and identifies the Called Party DN as corresponding to a mobile subscriber. COS 12 then forwards the call to the subscriber's home MSC 20. MSC 20 will thereafter launch a query to HLR 24 requesting the location of handset 30, as well as call termination parameters. This request, termed a Location Request
10 Message (LOCREQ), typically includes information such as calling party identification (the subscriber's DN or MIN) and redirecting party identification, the details of which are well known in the art and need not be discussed in further detail here. Thereafter, MSC 20 alerts handset 30 by generating a ringing signal.

15 In an ANSI-41 network, HLR 24 periodically receives update information regarding the location and call parameters for subscriber 30. This typically occurs wherever subscriber 30 "powers on" or enters a wireless serving area and initiates the registration process. Again, as those skilled in the art will recognize, handset 30 detects the presence of a Base Station (BS) 28 or Base Station Controller (BSC) 26. BS 28 or BSC 26, in turn, alerts the serving MSC, here MSC 20, that the handset 30
20 has begun registration. MSC 20 thereafter sends a Registration Notification Message (REGNOT) to HLR 24 requesting call termination parameters for handset 30. HLR 24 then sends a Registration Notification Response Message (regnot) to MSC 20. The REGNOT provides the above-referenced call termination parameters for subscriber 30 including whether the party has subscribed to any call forwarding
25 features such as the above-referenced CFBL, CFNA or CFD. MSC 20 then stores this information for subsequent processing.

Single number services such as U S West One Number Service™ provide a subscribing party the ability to simultaneously receive a ringing signal from a calling party at a plurality of CPE devices. Although each CPE device has a different
30 calling number or DN, a calling party need only dial a "single" calling number or

primary number. Each of the subscriber's DNs for corresponding CPE devices are stored at HLR 24 and cross-referenced with the subscriber's primary number. For example, a subscriber may have a primary calling number of (303) 541-4000 and individual Directory Numbers of (303) 672-2985, (303) 672-2781, and (303) 672-2986 corresponding to the subscriber's office, home, and mobile telephones, respectively. A calling party, however, need only dial the primary number (303) 541-4000. Using the primary number, COS 12 will perform a database look-up and identify the call as directed to a party that has subscribed to one number service. COS will thereafter forward the call to Intelligent Peripheral (IP) 22. IP 22 will launch a query to HLR 24 requesting the specific DNs corresponding to the primary DN. HLR 24 will perform a suitable database look-up and provide this information to IP 22 along with the corresponding call termination parameters for each mobile handset 30. IP 22 will thereafter generate and bridge the calls to all of the subscriber's DNs. Calls to land line or "wired" telephones, such as telephone 16, are forwarded over the PSTN 14 to a serving switch, such as COS 12, and routed accordingly. Calls to mobile or "wireless" telephones, such as handset 30, are forwarded over the wireless network to a serving MSC, such as MSC 20.

Regardless, if a call to a wireless handset 30 originates from MSC 20 as a direct call, or from IP 22 as part of a one number service, MSC 20 will initiate a call forward feature if handset 30 is currently engaged in a call or, for any reason, the subscriber fails to answer. This feature sends a Transfer To Number Request Message to HLR 24 requesting further routing instructions. Because HLR 24 is unable to distinguish between calls originating from MSC 20 and calls originating from IP 22, however, all calls will be forwarded to the subscriber's voice mail system.

As readily seen, forwarding a wireless call to a voice mail system in the case of single number service applications is undesirable, unnecessary, and wasteful of network resources.

Consequently, a need has developed for a method and system for conditionally forwarding calls to a wireless subscriber to an alternative device or system such as a voice mail system upon detection of a busy or no answer condition.

5

DISCLOSURE OF INVENTION

It is a principle object of the present invention to provide a method and system for conditionally forwarding calls to an alternative device or system.

10 It is a further object of the present invention to provide such a method and system operative to forward calls to a wireless subscriber to a voice mail system only when such calls are dialed directly to a Mobile Directory Number.

Still further, it is an object of the present invention to provide such a method and system which does not forward calls to a wireless subscriber's voice mail system when such calls are dialed directly to a single number service.

15 In carrying out the above objects, there is provided a method for conditional call forwarding to an alternative device or system. The method is specifically adapted for use in a communication network including a switching system such as a Mobile Switching Center (MSC) which is provided in communication with at least one alternative system such as, for example, a Voice Messaging System (VMS), an
20 Intelligent Peripheral (IP), and a plurality of subscribers, each having a handset with a corresponding Mobile Directory Number (MDN). The method includes providing a Service Location Register such as a Wireless Service Location Register (WSLR)TM, (also called a wireless SCP), in communication with the switching center. The Service Location Register is operative to retrieve stored call termination parameters
25 for each of the subscriber Mobile Directory Numbers and call information for each incoming call to a Mobile Directory Number. The call termination parameters include call forwarding feature. The method further includes detecting a busy or no

answer condition for a call to a Directory Number and forwarding a request to the Service Location Register for further routing instructions. The method further includes applying service logic to forward the call to a Direct Inward Dialing (DID) number of a resource on the IP, and applying service logic to disconnect the call or
5 route the call to the at least one alternative system.

In a preferred embodiment, the switching system is a Mobile Switching Center (MSC), the at least one alternative system is a Voice Messaging System, and, as indicated above, the Service Location Register is a WSLR™. The call information includes calling party identification and/or redirecting party
10 identification. Further, the request to the WSLR™ comprises a Transfer To Number Request including redirecting reason. The service logic is operative to examine the calling party information and, in particular, the original called number, the calling party identification, redirecting party identification and/or redirecting reason to conditionally determine if voice messaging is applicable. If the call originates from
15 an Intelligent Peripheral therefore indicating that subscriber's simultaneous ring service was invoked, the WSLR™ is operative to instruct the MSC to disconnect the call. In contrast, if it is determined that the call was originally placed to the mobile subscriber directly and not redirected by an IP, the voice messaging destination will be returned to the MSC.

In keeping with the invention, any suitable routing criteria may be provided as part of the call termination parameters. For example, only business related calls as determined by the calling party number or any other suitable information or criteria such as time, day or date of call may be routed to voice mail. Still further, only calls with unrestricted calling party identification may be routed to voice mail.
20 The subscriber's profile as part of the call termination parameters may also provide for routing to multiple voice mail systems in accordance with any suitable criteria such as, for example, business or personal uses.
25

In carrying out the above method, there is provided a system including a MSC which is provided in communication with a Service Location Register such as a
30 WSLR™, an IP, and a plurality of subscribers and, more particularly, subscriber

handsets. The MSC may be provided in direct communication with the handsets or via appropriate base station controllers and/or base stations as known by those skilled in the art. In keeping with the invention, WSLR™, which is a network computer containing both Home Location Register (HLR) applications and Wireless Service
5 Control Point (WSCP) applications is operative to retrieve stored call termination parameters for each of the subscribers in accordance with their Mobile Directory Number. The WSLR™ is further operative to retrieve call information for each incoming call to a Mobile Directory Number. Call termination parameters include call forwarding features and the call information includes calling party identification
10 and/or redirecting party identification.

The MSC is operative to detect a busy or no answer condition for a call to a directory number and thereafter forward a request such as a transfer to number request to the WSLR™ for routing instructions. In a preferred embodiment, the request includes redirecting reason. The WSLR™ is further adapted to apply service
15 logic to forward the call to a DID number of a resource on the IP or forward it to the Voice Messaging System following examination of the call information. When the call arrives at the DID number of a resource on the IP, the IP will query the WSLR which will apply service logic. Specifically, the WSLR™ will determine if the call originated from the MES or if it originated from the IP as part of a single number
20 service such as U S West One Number Service™. These and other objects, features, and advantages of the present inventions will become readily apparent with reference to the following description of the drawings wherein like reference numerals correspond to like components.

BRIEF DESCRIPTION OF DRAWINGS

25 FIGURE 1 is a schematic diagram of a prior art wireless network;

FIGURE 2 is a schematic diagram of improved wireless network of the present invention which provides conditional call forwarding to an alternative system.

FIGURE 3 is a block diagram of the method steps of the present invention.

BEST MODE FOR CARRYING OUT THE INVENTION

With reference to Figure 2 of the drawings, there is shown an improved wireless network of the present invention which provides for conditional call forwarding of a wireless cal to an alternative device or system. The system is designated generally by reference numeral 32. Like the prior art network 10, network 32 includes one or more Central Office Switches (COS) 34. Each COS 34 is provided in communication with one or more subscriber CPE devices via the Public Switched Telephone Network (PSTN) 36. Each COS 34 is further provided in communication with a Mobile Switching Center (MSC) 38, an Intelligent Peripheral (IP) 42, and a plurality of subscribers via handsets 44 each having a corresponding Mobile Directory Number (MDN). Handsets 44 may be provided in direct communication with MSC 38 or may communicate with one or more Base Stations (BSs) 46 or Base Station Controllers (BSCs) 48 which, in turn, are provided in communication with MSC 38. MSC 38 is further provided in communication with Intelligent Peripheral 42 and a Wireless Service Location Register (WSLR)TM 50.

As those skilled in the art will recognize, WSLRTM 50 is a network computer containing both Home Location Register (HLR) applications as well as Wireless Service Control Point (WSCP) applications. Similarly, Intelligent Peripheral (IP) 42 is a network switching platform that can be equipped with advanced services such as, for example, a simultaneous ring application where incoming calls to the IP 42 are connected with a plurality of wireless handsets 44 and wire line phones 52. Handsets 44 communication with MSC 38 using radio frequencies. Common digital protocols for this transmission activity include Code Division Multiple Access (CDMA) and Time Division Multiple Access (TDMA). Base Stations 46 and/or Base Station Controllers 48 communication with MSC 38 using a base station protocol such as IS-634 or a similar protocol. MSC 38 further communicates with WSLRTM 50 using a signaling protocol such as ANSI-41 or GSM MAP.

As indicated above, in an ANSI-41 network, when a mobile user "powers on" a mobile handset 44, or when a mobile user enters a wireless serving area, handset 44 detects the presence of a Base Station 46 or MSC 38 and begins a registration procedure. Base Station 46 alerts MSC 38 that a handset has begun registration and
5 MSC 38 sends a registration notification message to WSLR™ 50. In the registration notification response, WSLR™ 50 indicates to the MSC 38 that the subscriber has a Call Forwarding feature such as Call Forwarding Busy Line (CFBL), Call Forwarding No Answer (CFNA) or Call Forwarding Default (CFD). MSC 38 stores this information in any suitable database such as a Visiting Location Register (VLR)
10 as part of MSC 38 and is operative to retrieve it on request.

All incoming calls to mobile subscriber 44 (whether dialed direct or redirected by IP 42 due to a one number service) are received by MSC 38. MSC 38 queries WSLR™ with a suitable request such as a Location Request Message which contains information such as calling party identification and redirecting party
15 identification, requesting further instructions. WSLR™ 50 responds to the request with call termination parameters and the MSC 38 begins alerting handset 44 by generating a ringing signal. If the handset is currently engaged in another call and cannot receive a new call, MSC 38 initiates a Call Forwarding Busy feature. This feature sends a Transfer To Number Request message, containing information such
20 as redirection reason, to the WSLR™ 50 asking for further instructions. At this point, the WSLR™ uses service logic to reroute the call.

In contrast to the prior art where all unanswered calls are directed to a Voice Messaging System, WSLR™ 50 applies service logic to forward the call to a predetermined Direct Inward Dialing (DID) number of a resource on IP 42 and
25 conditionally apply voice messaging. More specifically, WSLR™ 50 uses the subscriber's MDN to perform a database look-up and locate a corresponding DID number of a resource on IP 42. WSLR™ 50 thereafter instructs MSC 38 to forward the call accordingly and MSC 20 redirects the call to that resource on IP 42. Upon receipt of the incoming call at IP 42, IP 42 queries WSLR™ 50 for instructions on
30 how to further process the call. In keeping with the invention, WSLR™ 50 examines the original called number, calling party identification, redirecting party

identification, and/or redirecting reason to conditionally determine if redirection to an alternative device or system such as voice messaging is applicable. More specifically, if the call is coming from the IP 42 and the subscriber's single number service was originally dialed, the WSLR™ 50 instructs MSC 38 to disconnect the call. In contrast, if the call was originally placed to the mobile subscriber directly, and was not redirected by IP 42, then a predetermined alternative system destination will be returned to the MSC 38. The alternative system destination is stored as part of the subscribers profile and includes a specific address corresponding to a server in accordance with predetermined criteria. Thus, in the case of voice messaging, a specific Voice Messaging System server address will be stored.

Similarly, if the mobile user 44 decides not to answer the call, MSC 38 sends the Transfer To Number Request with a different redirection reason. The same method to that described above applies to unanswered calls with the exception that the MSC 38 will initiate a Call Forwarding No Answer feature.

In keeping with the invention, any suitable call termination parameters may be provided separate and apart from those directed to call forwarding relating to a one number service application. Moreover, any suitable alternative device or system may be used for routing purposed, including, but not limited to, a voice mail system. For example, a subscriber's profile may provide that only business related calls be routed to an alternative device or system such as voice mail. Such calls may be identified by the system in any suitable manner including cross reference to a calling party number, as well as the time, day or date of the call. A subscriber's call forwarding profile may further provide that only calls with unrestricted calling party identification (calling party information not blocked out) be redirected. Still further, a subscriber may have multiple alternative system (including multiple voice mail systems) for which calls may be forwarded in accordance with any suitable criteria including that indicated above.

Turning now to Figure 3 of the drawings, the method steps of the invention will be described in further detail. As indicated above, the method is adapted for use in a communication network including a switching center such as a Mobile

Switching Center, in communication with at least one alternative system such as a Voice Messaging System and a plurality of subscribers, each having at least one Directory Number. The method comprises providing 54 a Service Location Register (such as WSLR™) in communication with the switching center which is operative
5 to retrieve stored call termination parameters for each of the subscriber directory numbers and call information for each incoming call to a directory number. The call termination parameters include call forwarding features. The method further comprises detecting 56 a busy or no answer condition for a call to a directory number, and forwarding 58 a request to the Service Location Register for routing
10 instructions. The method further comprises applying 60 service logic to forward the call to a Direct Inward Dialing (DID) number of a resource on the IP or route the call to the at least one alternative system. When the call arrives at the DID number of a resource on the IP, a query will be generated to determine whether to disconnect the call or route the call to the at least one alternative system. In keeping with the
15 invention, the service logic may include a determination of the day of the week, the date, the time, the number of calls already forwarded to voice mail or forwarded in a given time period, or the type of call based on the calling party directory number of the blocking thereof such as a business call, a personal call, a solicitation, etc.

While embodiments of the invention have been illustrated and described, it
20 is not intended that these embodiments illustrate and describe all possible forms of the invention. Rather, the words used in the specification are words of description rather than limitation, and it is understood that various changes may be made without departing from the spirit and scope of the invention.

WHAT IS CLAIMED IS:

1. For use in a communication network including a switching center in communication with at least one alternative system, an Intelligent Peripheral (IP), and a plurality of subscribers, each subscriber having at least one Directory Number (DN), a method for conditionally forwarding a call, comprising:
 - 5 providing a service location register in communication with the switching center, the service location register operative to retrieve stored called termination parameters for each of the subscriber's DNs, and call information for each incoming call to a DN, the call termination parameters including call forwarding features;
 - 10 detecting a busy or no answer condition for a call to a DN;
 - forwarding a request to the service location register for routing instructions;
 - applying service logic to forward the call to a Direct Inward Dialing (DID) number of a resource on the IP; and
 - 15 applying service logic to disconnect the call or route the call to the at least one alternative system.
2. A method as in claim 1, wherein the switching system is a Mobile Switching System (MSC).
- 20 3. A method as in claim 1, wherein the service location register is a Wireless Service Location Register (WSLR™).
4. A method as in claim 1, wherein the step of applying service logic includes determining based on the calling party Directory Number if the call is a business or a personal call.
- 25 5. A method as in claim 4, wherein the call is forwarded to a first alternative system if the call is a business call and the call is forwarded to a second alternative system if the call is a personal call.

6. A method as in claim 1, wherein the step of applying service logic includes determining if the calling party directory number has been restricted.

7. A method as in claim 6, wherein the call is forwarded to the at least one alternative system only if the calling party directory number is unrestricted.

5 8. A method as in claim 1, wherein the step of applying service logic includes determining the time of day the call was placed.

9. A method as in claim 1, wherein the step of applying service logic includes determining the day of the week the call was placed.

10 10. A method as in claim 1, wherein the step of applying service logic includes determining the date the call was placed.

11. A method as in claim 1, wherein the at least one alternative system comprises a Voice Messaging System.

15 12. For use in a wireless communication network including a switching center in communication with at least one voice messaging system, an Intelligent Peripheral (IP), and a plurality of subscribers, each subscriber having at least one Directory Number (DN), a method for conditionally forwarding a call, comprising:
providing a Wireless Service Location Register (WSLR™) in
communication with the switching center, the WSLR™ operative to retrieve
20 stored called termination parameters for each of the subscriber's DNs, and
call information for each incoming call to a DN, the call termination
parameters including call forwarding features;
detecting a busy or no answer condition for a call to a DN;
forwarding a request to the WSLR™ for routing instructions;
applying service logic to forward the call to a Direct Inward Dialing
25 (DID) number of a resource on the IP; and
applying service logic to disconnect the call or route the call to the at
least one voice messaging system.

13. A method as in claim 12, wherein the switching system is a Mobile Switching System (MSC).

14. A method as in claim 12, wherein the step of applying service logic includes determining based on the calling party Directory Number if the call is a
5 business or a personal call.

15. A method as in claim 14, wherein the call is forwarded to a first voice messaging system if the call is a business call and the call is forwarded to a second voice messaging system if the call is a personal call.

16. A method as in claim 12, wherein the step of applying service logic includes determining if the calling party directory number has been restricted.
10

17. A method as in claim 16, wherein the call is forwarded to the at least one voice messaging system only if the calling party directory number is unrestricted.

18. A method as in claim 12, wherein the step of applying service logic includes determining the time of day the call was placed.
15

19. A method as in claim 12, wherein the step of applying service logic includes determining the day of the week the call was placed.

20. A method as in claim 12, wherein the step of applying service logic includes determining the date the call was placed.
20

21. For use in a communication network including at least one alternative system, an Intelligent Peripheral (IP), and a plurality of subscribers, each subscriber having at least one Directory Number (DN), a system for conditionally forwarding a call, comprising:

a switching center in communication with the at least one alternative system, the switching center operative to detect a busy or no answer condition for a call to a DN and forward a request for routing instructions; and

5 a service location register in communication with the switching center, the service location register operative to retrieve stored call termination parameters for each of the subscriber DN's, and call information for each incoming call to a DN, the call termination parameters including call forwarding features, the service location
10 register further operative to apply service logic to receive the request for routing instructions from the switching center, apply service logic to forward the call to a Direct Inward Dialing (DID) number of a resource on the IP and disconnect the call or route the call to the at least one alternative system.

22. A system as in claim 21, wherein the switching center is a Mobile Switching Center (MSC).

15 23. A system as in claim 21, wherein the at least one alternative system is a voice Messaging System (VMS).

24. A system as in claim 21, wherein the service location register is a Wireless Service Location Register.

ABSTRACT OF THE DISCLOSURE

- A method for conditionally forwarding a call for use in a communication network including a switching center in communication with at least one alternative system, an Intelligent Peripheral, and a plurality of subscribers, each subscriber having at least one directory number. The method includes providing a service location register in communication with the switching center, the service location register operative to retrieve stored call termination parameters for each of the subscriber directory numbers and call information for each incoming call to a directory number, the call termination parameters including call forwarding features.
- 5 A busy or no answer condition is detected for a call to a directory number and a request is forwarded to the service location register for routing instructions. Service logic is applied to forward the call to a Direct Inward Dialing (DID) number of a resource on the IP and service logic is applied to terminate the call at the directory number or route the call to the at least one alternative system.
- 10

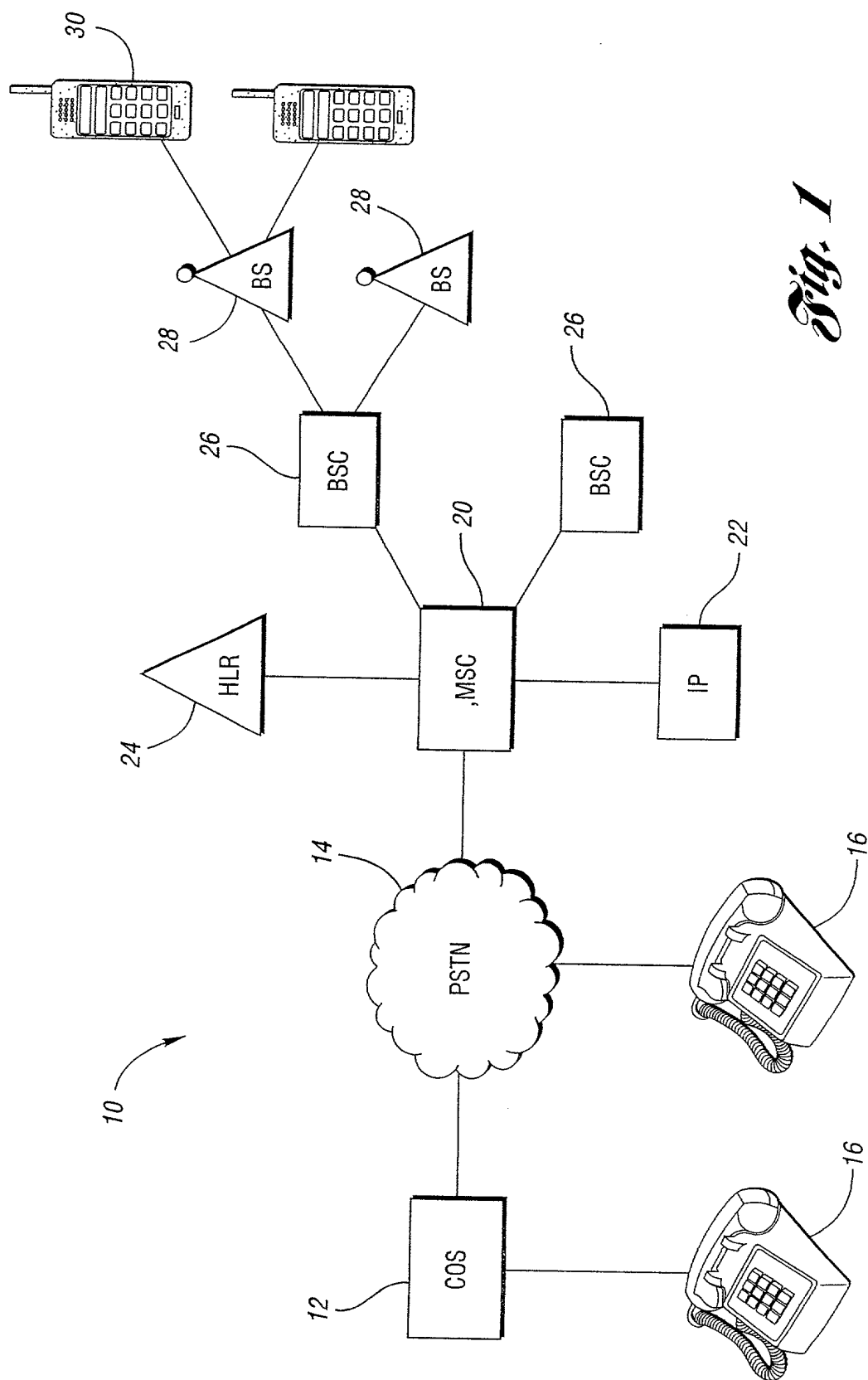
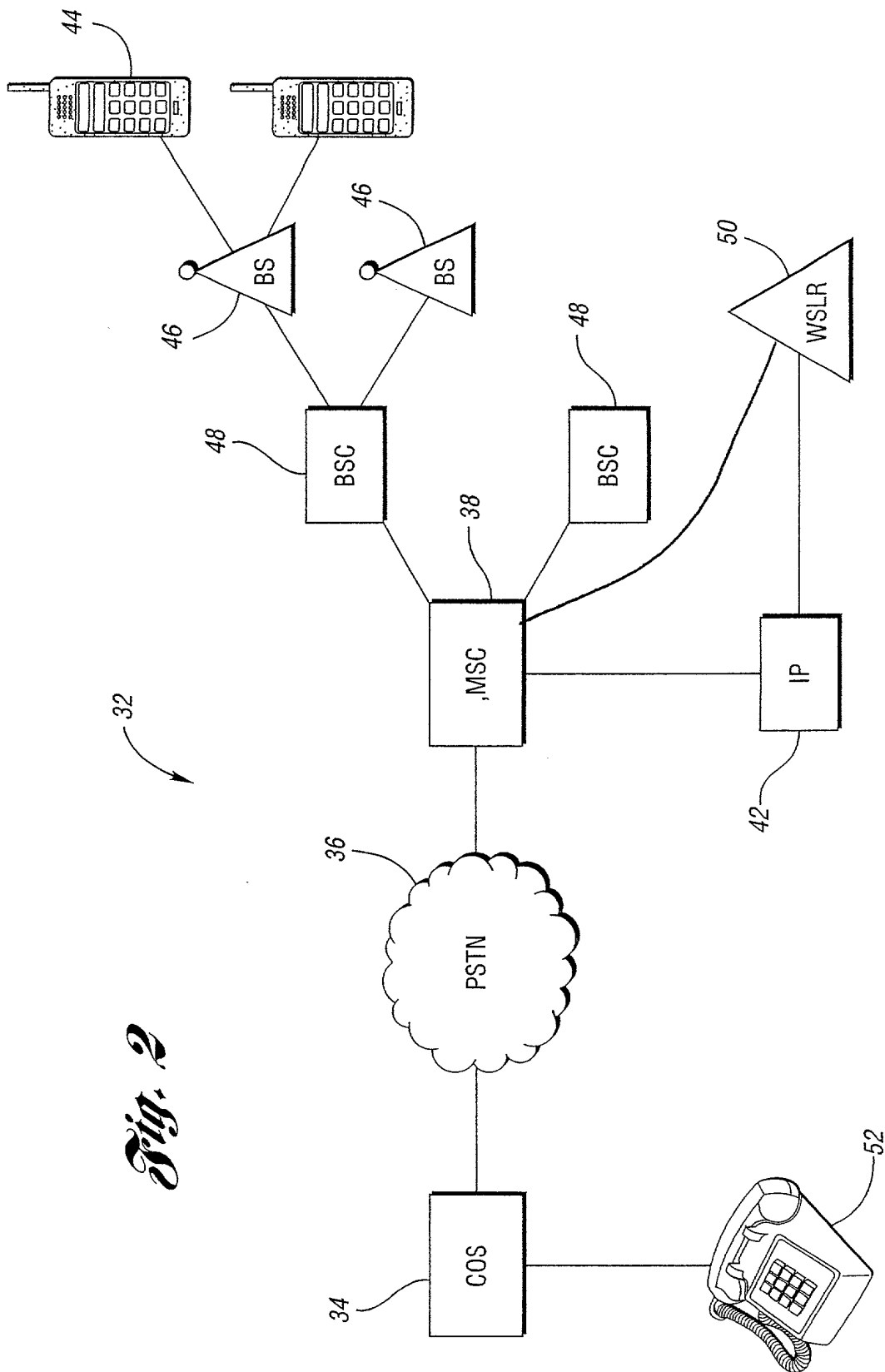


Fig. 2



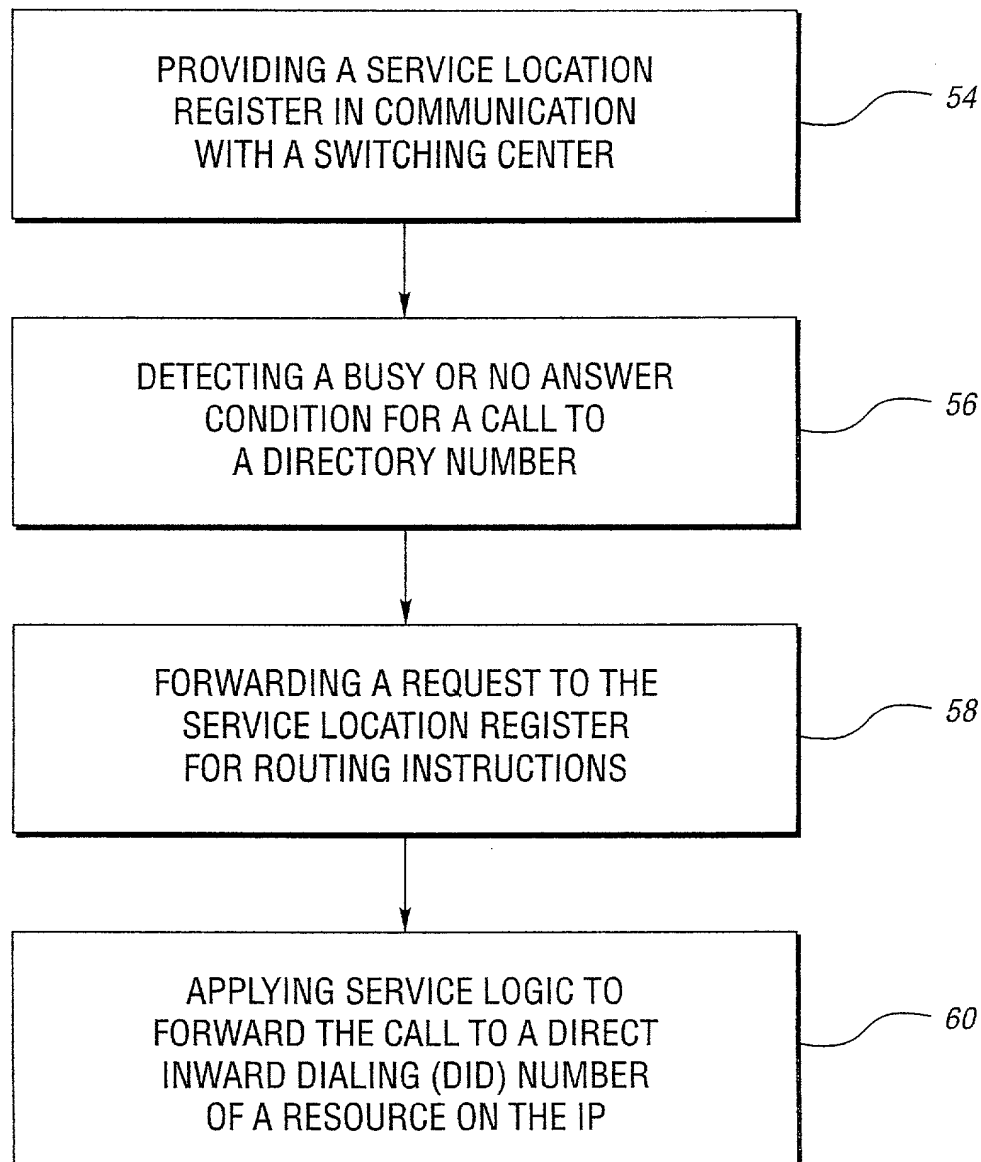


Fig. 3

DECLARATION FOR PATENT APPLICATION AND POWER OF ATTORNEY

Atty. Docket No. 1752/USW 1752 PUS

First Named Inventor Donald E. Gillespie

As a below named inventor, I hereby declare that my residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

METHOD AND SYSTEM FOR CONDITIONALLY ROUTING CALLS

the specification of which:

☒ is attached hereto

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, § 119(a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below, and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT international application having a filing date before that of the application on which priority is claimed.

<i>Prior Foreign Application Number(s)</i>	<i>Country</i>	<i>Foreign Priority Date (MM/DD/YYYY)</i>	<i>Priority Not Claimed</i>	<i>Certified Copy Attached? (Yes/No)</i>

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below.

<i>Application Number(s)</i>	<i>Filing Date (MM/DD/YYYY)</i>
60/215,013	June 29, 2000

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code § 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, § 1.56 which occurred between the filing date of the prior application and the national or PCT international filing date of this application.

<i>Application Number(s)</i>	<i>Filing Date (MM/DD/YYYY)</i>	<i>Status: Patented, Pending, Abandoned</i>

Declaration for Patent Application (cont'd.)

Atty. Docket No. 1752/USW1752PUS

I hereby appoint the practitioners associated with Customer Number 22193 to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith, and direct that all correspondence be addressed to that Customer Number. Telephone calls should be directed to Qwest Communications International Inc., Law Department--Intellectual Property Group, at (877) 879-4747 or (303) 672-2700.



22193

PATENT TRADEMARK OFFICE

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full Name of Sole or First Inventor Donald E. Gillespie

Inventor's signature *Donald E. Gillespie* Date 8/11/2002

Post Office Address 3807 Silver Plume Circle, Boulder, Colorado 80303

Residence (same as above) Citizenship U.S.A.

Full Name of Second Joint Inventor David G. Robinson

Inventor's signature *David G. Robinson* Date 8/11/2002

Post Office Address 4639 Ipswich, Boulder, Colorado 80301

Residence (same as above) Citizenship U.S.A.

Full Name of Third Joint Inventor _____

Inventor's signature _____ Date _____

Post Office Address _____

Residence _____ Citizenship _____

Full Name of Fourth Joint Inventor _____

Inventor's signature _____ Date _____

Post Office Address _____

Residence _____ Citizenship _____